IMPRIMERIE LOUIS-JEAN
Publications scientifiques et littéraires
TYPO - OFFSET
05002 GAP - Téléphone 51 35 23 -
Dépôt légal 49-1977

THE INTERNATIONAL HYDROGRAPHIC REVIEW*

published in January and July in English and French editions by the
International Hydrographic Bureau, Avenue Président J.F. Kennedy,
MC-MONTE CARLO, Monaco (Principality).
Editor : M.R. Healy.

Vol. LIV, No. 1 - January 1977. Price 50 French francs.

A B S T R A C T S

Report by the President of the Directing Committee, IHO, 1972-77 (pp. 7-15) : Rear Admiral G.S. RITCHIE.

Admiral Ritchie outlines the achievements of the IHO during the last five years in a paper intended to serve as his Opening Address to the April 1977 International Hydrographic Conference. He also alludes to some of the problems facing the hydrographic services of the world and the IHO itself, and indicates some of the options for future progress which may be discussed by Hydrographers of Member States during the Conference.

Consideration of meteorological conditions when determining the navigational water depth over a sandwave field (pp. 17-30) : D.N. LANGHORNE, IOS, Taunton, UK.

Study of a Thames Estuary sandwave field shows that large surface waves caused by bad weather can temporarily modify the normally constant wave length kept in equilibrium by tidal action. At Longsand Head the sandwaves can reduce the navigational depth by up to 36%, a significant reduction in view of the small underkeel clearances now accepted. The author recommends that the preceding sea conditions be borne in mind when surveying in sandwave areas.

Towards a coordinated international radio navigational warnings system (pp. 31-38) : Captain H. SCHUMANN, DHI, Hamburg.

A German expert describes progress in improving arrangements for the coordinated broadcasting of navigational warnings to ships at sea. The Draft Plan worked out in conjunction with IMCO has now been implemented in 7 of the 16 NAVAREAs established to cover the world.

Doppler satellite positioning of offshore structures (pp. 39-58) : L.D. HOTHEM & W.E. STRANGE, U.S. National Ocean Survey.

Doppler satellite positioning has become an important technique for extending geodetic control into offshore areas, both for accuracy and for economy. This paper discusses the techniques applicable to offshore rigs, and shows that under normal conditions accuracy should be better than 1.5 metres.

(*) Also published in French : *"Revue Hydrographique Internationale"*.

The propagation velocity of Decca-frequency transmissions over sea ice (pp. 59-71) : D.H. GRAY, Canadian Hydrographic Service.

Positioning systems for oil exploration in the Arctic must be operable in all seasons, including the eight months of ice cover. The preferred systems are therefore satellite navigation, long-range direct wave, and 100 kHz systems, provided the effect of sea ice on the propagation velocity is known. The test here described compares the secondary phase lag effect of sea ice and sea water, for the Decca Chain in the Amundsen Gulf.

The Admiralty method of tidal prediction, N.P. 159 (pp. 73-85) : Commander N.C. GLEN, Superintendent Tidal Branch, Hydrographic Department, Taunton.

Discusses the new edition of N.P. 159 issued Jan. 1976, which simplifies the calculation of hourly heights for ports for which Harmonic Constants are published in the Tide Tables. The main improvement to the previous method of prediction is the application of Shallow Water Corrections - Quarter and Sixth Diurnals.

Some recent investigations into the harmonic shallow-water corrections method of tidal predictions (pp. 87-108) : M. AMIN, IOS Bidston, Birkenhead, UK.

This paper presents a reformulation by spectral analysis of Doodson's 1957 H. S.W.C. method of analysis and prediction of shallow water tidal regimes, and compares it with the Extended Harmonic Method (EHM) and Improved Response Method (IRM).

The illustration of oceanic data. I : Scalars (pp. 109-118) : Dr. C.P. DUNCAN, International Cartographic Association.

Following Ann Richardson's presentation of cartographic techniques used by oceanographers (*I.H. Review*, Jan. 1975), this paper rationalises the scalar quantities in oceanic data, so that the oceanographer can best choose the most suitable form of diagram for his purpose.

The development of the mariner's chart (pp. 119-130) : Captain C.H. COTTER, Department of Maritime Studies, UWIST, Cardiff, Wales, UK.

The key to the problem of projecting rhumb-lines as straight lines - vital to a navigational chart - was suggested by Mercator, but there is no evidence that he understood the mathematical principles of this projection. Dr. Cotter traces the development of a chart for navigation, especially in high latitudes, free from the defects of the "plane chart", the navigational globe, or the polar zenithal chart, and studies the influence of Nuñez, Dee, Mercator and Wright.

(*) Also published in French : *"Revue Hydrographique Internationale"*.

— **Report by the President of the Directing Committee (1972-1977)** 7
(G.S. RITCHIE).

— **Consideration of meteorological conditions when determining the navigational water depth over a sandwave field** (D.N. LANGHORNE). 17

— **Towards a coordinated international radio navigational warnings system** (H. SCHUMANN) 31

— **Doppler satellite positioning of offshore structures** 39
(L.D. HOTHEM, W.E. STRANGE).

— **The propagation velocity of Decca-frequency transmissions over sea ice** (D.H. GRAY) 59

— **The Admiralty method of tidal prediction, N.P. 159** (N.C. GLEN) 73

— **Some recent investigations into the harmonic shallow water corrections method of tidal predictions** (M. AMIN) 87

— **The illustration of oceanic data. (I) : Scalars** (P. DUNCAN) 109

— **The development of the mariner's chart** (C.H. COTTER) 119

— **International cooperation in hydrography (Letter to the Editor)** 131
(A. MACCHIAVELLI).

— **Fifty years ago** 137